

I claim:

1. A process for producing a composite structural element,

which comprises:

providing a thin-section wall part;

placing the thin-section wall part into a mold;

applying reinforcing elements to the thin-section wall part;

placing a counter-mold onto the mold for forming a mold cavity;

introducing a binder having a foaming agent into said mold cavity via one of injection cannulas and nozzles, after a set time delay a foaming of the binder occurring for encapsulating the reinforcing elements on all sides.

2. The process according to claim 1, which comprises

introducing the binder having the foaming agent into an open mold.

3. The process according to claim 1, which comprises using the binder having the foaming agent with a set time delay of less than 5 seconds for foaming the binder.

4. The process according to claim 1, which comprises priming the thin-section wall part on a foam application side to improve adhesion before applying the binder.

5. The process according to claim 1, which comprises backing the thin-section wall part with a hard shell formed with reinforcing elements by one of compression molding and injection molding before a formation of the mold cavity, and applying a second hard shell subsequently to the free side of the molding.

6. The process according to claim 5, which comprises molding on transverse cross-pieces to the hard shell during the application of the hard shell.

7. The process according to claim 5, which comprises forming a recycled core from one of a foam and a comparable light weight material and placing the recycled core in the reinforcing elements before the binder is injected.

8. A process for producing a composite structural element, which comprises:

producing moldings formed with reinforcing elements and a binder by foaming of the binder for encapsulating the reinforcing elements;

producing hard shells formed with the reinforcing elements and the binder by foaming of the binder for encapsulating the reinforcing elements; and

providing a thin-section wall part, and bonding adhesively the moldings and the hard shells to the thin-section wall part for forming a composite element.

9. The process according to claim 8, which comprises producing the moldings with recycled cores.

10. The process according to claim 8, which comprises producing the hard shells with transverse cross-pieces.

COMBINED DECLARATION AND POWER OF ATTORNEY
IN ORIGINAL APPLICATION

As a below named inventor, I hereby declare that: my residence, post office address and citizenship are as stated below next to my name; that I verily believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

STRUCTURAL ELEMENT AND PROCESS FOR ITS PRODUCTION

described and claimed in the specification bearing that title, that I understand the content of the specification, that I do not know and do not believe the same was ever known or used in the United States of America before my or our invention thereof, or patented or described in any printed publication in any country before my or our invention thereof or more than one year prior to this application, that the same was not in public use or on sale in the United States of America more than one year prior to this application, that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representatives or assigns more than twelve month prior to this application, that I acknowledge my duty to disclose information of which I am aware which is material to the examination of this application under 37 C.F.R. 1.56a, and that no application for patent or inventor's certificate of this invention has been filed earlier than the following in any country foreign to the United States prior to this application by me or my legal representatives or assigns:

German Application Serial No. 196 32 550.1, filed August 13, 1996, the International Priorities of which are claimed under 35 U.S.C. §119; and International Application Serial No. PCT/DE97/01239, filed June 18, 1997, the Priority of which is claimed under 35 U.S.C. §120.

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

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I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

FULL NAME OF SOLE INVENTOR:

ROLF HESCH

INVENTOR'S SIGNATURE: Rolf Hesch

DATE: 9.6.88

Residence: LEMGO, GERMANY

Country of Citizenship: GERMANY

Post Office Address: STEINKAMP 2c
D-32657 LEMGO
GERMANY

INVENTOR'S STATEMENT

Applicants: ROLF HESCH
Filed : Concurrently herewith
Title : STRUCTURAL ELEMENT AND PROCESS FOR ITS
PRODUCTION

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY
STATUS (37 CFR 1.9(F) AND 1.27(B)) - INDEPENDENT INVENTOR

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled STRUCTURAL ELEMENT AND PROCESS FOR ITS PRODUCTION described in the specification filed herewith.

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e). Each person, concern or organization to which I have assigned, granted, conveyed, or licensed, or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

() no such person, concern, or organization:
(X) persons, concerns or organizations listed below:

Full Name of Concern Möller Plast GmbH

Address of Concern Kupferhammer, 33649 Bielefeld, Germany

()Individual (X)Small Business Concern () Nonprofit Organization

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

ROLF HESCH

Name of Inventor

Rolf Hesch

Signature of the Inventor

P.G. P

Date

Applicants: ROLF HESCH
Filed : Concurrently herewith
Title : STRUCTURAL ELEMENT AND PROCESS FOR ITS
PRODUCTION

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY
STATUS (37 CFR 1.9(f) and 1.27(c)) - SMALL BUSINESS CONCERN

I hereby declare that I am

() the owner of the small business concern identified below:
() an official of the small business concern empowered to act
on behalf of the concern identified below:

Name of Small Business Concern Möller Plast GmbH

Address of Concern Kupferhammer, 33649 Bielefeld, Germany

I hereby declare that the above identified small business concern qualifies as a small business concern as defined in 13 CFR 121.12, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees to the United States Patent and Trademark Office, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third-party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed, to and remain with the small business concern identified above with regard to the invention, entitled **STRUCTURAL ELEMENT AND PROCESS FOR ITS PRODUCTION** by inventor ROLF HESCH, described in the specification filed herewith.

If the rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights in the invention is listed below* and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING: Friedhelm Beckmann

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SIGNATURE: Friedhelm Lohse

DATE: 27.07.1998